

CLAIMS

We claim:

1. A process for producing a sonicated plant seed comprising:
  - a. providing a plant seed; and
  - b. sonicating the plant seed in the presence of a solvent at an intensity of at least 95 W/cm<sup>2</sup> and at a frequency ranging from about 16 to about 100 kHz.
2. The process according to claim 1 further comprising recovering product resulting from the sonication.
3. The process according to claim 2 wherein the recovered product includes a protein, a carbohydrate, a fiber, a vitamin, an antioxidant, a pharmaceutical, or an oil.
4. The process according to claim 1 wherein the plant seed is sonicated at an intensity of at least 95 W/cm<sup>2</sup> to about 500 W/cm<sup>2</sup>.
5. The process according to claim 1 wherein the plant seed is sonicated at an intensity of about 100 W/cm<sup>2</sup> to about 300 W/cm<sup>2</sup>.
6. The process according to claim 1 wherein the plant seed is sonicated at a frequency ranging from about 16 to about 40 kHz.
7. The process according to Claim 1 wherein the plant seed is sonicated at an intensity of 95 W/cm<sup>2</sup> to 127 W/cm<sup>2</sup>.
8. The process according to claim 6 wherein the frequency is 24 kHz.
9. The process according to claim 1 wherein the solvent is selected from the group consisting of an aqueous solvent, an organic solvent, and a mixture thereof.
10. The process according to claim 9 wherein the solvent is an aqueous solvent.
11. The process according to claim 10 wherein the aqueous solvent is water.
12. The process according to claim 9 wherein the solvent is an organic solvent.
13. The process according to claim 12 wherein the organic solvent is selected from the group consisting of methanol, ethanol, butanol, propanol, iso-propanol, hexane, isohexane, and acetone.
14. The process according to claim 1 wherein the plant seed is selected from the group consisting of a cereal and an oil seed.
15. The process according to claim 14 wherein the cereal is selected from the group consisting of corn (maize), rice, sorghum, barley, and wheat.
16. The process according to claim 15 wherein the cereal is corn.
17. The process according to claim 15 wherein the cereal is rice.

18. The process according to claim 14 wherein the oil seed is selected from the group consisting of soybean, peanut, rapeseed (canola), cottonseed, safflower, sunflower, castor bean, and linseed (flax).
19. The process according to claim 18 wherein the oil seed is soybean.
- 5 20. The process according to claim 18 wherein the oil seed is peanut.
21. The process according to claim 18 wherein the oil seed is canola.
22. The process according to claim 1 further comprising sonicating the sonicated plant seed at an intensity of at least 95 W/cm<sup>2</sup> and a frequency ranging from 16 to 100 kHz.
- 10 23. A process for producing a starch product comprising using a sonicated plant seed of claim 1 wherein the plant seed is a starch containing plant seed.
24. A process for producing a starch product comprising using a sonicated plant seed of claim 22 wherein the plant seed is a starch containing plant seed.
25. A process for producing a fermentation feedstock comprising using the sonicated plant seed of claim 1.
- 15 26. A process for producing a fermentation feedstock comprising using the sonicated plant seed of claim 22.
27. A process for using the sonicated plant seed of claim 1 as a fermentation feedstock.
28. A process for using the sonicated plant seed of claim 22 as a fermentation feedstock.
29. A fermentation feedstock produced according to claim 25.
- 20 30. A fermentation feedstock produced according to claim 26.
31. The process according to claim 22 further comprising recovering product resulting from the sonication.
- 25 32. The process according to claim 31 wherein the recovered product includes a protein, a carbohydrate, a fiber, a vitamin, an antioxidant, a pharmaceutical, or an oil.